FP05049US

WHAT IS CLAIMED IS:

1. A method for improving channel transmission efficiency in a wireless network which, in the course of data transmission, changes a length of a data frame split from a Media Access Control (MAC) layer service data packet in real-time according to a channel state of the wireless network.

2. The method according to Claim 1, wherein the method is in that: in the course of data transmission, the channel state of the wireless network is monitored in real-time, and if the channel of the wireless network is of a good quality or does not have a signal collision phenomenon, then the length of the data frame split from the Media Access Control (MAC) layer service data packet is increased, and if the channel of the wireless network is of a bad quality or has severe signal collisions, then the length of the data frame split from the Media Access Control (MAC) layer service data packet is decreased.

3. The method according to Claim 2, wherein it comprises steps of:

1) starting data transmission and splitting the MAC layer service data packet according to an initial threshold for the length of the data frame to transmit;

2) reading and recording acknowledgement information (ACK) sent by a partner in real-time;

3) determining the channel quality of the wireless network according to whether the ACK information has been successfully received for a predetermined times, if the channel of the wireless channel is of a good quality, then increasing the threshold for the length of the data frame split from the MAC layer service data packet, and otherwise decreasing the threshold for the length of the data frame;

4) splitting a subsequent MAC layer service data packet according to the threshold for the length of the data frame adjusted in step 3) to transmit;

5) repeating steps 2), 3) and 4) until the end of this data transmission.

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4. The method according to Claim 3, wherein the initial threshold is a threshold specified in *Wireless LAN Media Access Control (MAC) and Physical Layer (PHY) Specifications* (IEEE 802.11).

5   5. The method according to Claim 3, wherein the step 3) includes steps of:

3A) presetting the times N for which the ACK information is continuously received successfully before increasing the threshold for the length of the data frame, and the times M for which the ACK information is continuously received unsuccessfully before decreasing the threshold for the length of the data frame;

10   3B) when the ACK information is continuously received successfully for N times, the channel of the wireless network being of a good quality and increasing the threshold for the length of the data frame;

3C) when the ACK information is continuously received unsuccessfully for M times, the channel of the wireless network being of a bad quality and decreasing the

15   threshold for the length of the data frame.

6. The method according to Claim 3, wherein the step 3) includes steps of:

3a) presetting a time interval for adjusting the threshold for the length of the data frame;

20   3b) determining whether the ACK information is received for the predetermined times within the time interval preset in step 3a), if the ACK information is successfully received for the predetermined times, then the channel of the wireless network being of a good quality and increasing the threshold for the length of the data frame, and otherwise the channel of the wireless network being of a bad

25   quality and decreasing the threshold for the length of the data frame.

7. The method according to Claim 6, wherein the preset time interval is a product obtained by multiplying the number of the sent data frames by a maximum time duration required from sending of one data frame to receipt of an ACK of this frame

30   specified in IEEE 802.11 protocol.

8. The method according to Claim 6, wherein the predetermined times for receiving the ACK information is in a range between a number obtained by subtracting the number of lost packets allowable to the user from the number of the sent data frames and the number of the sent data frames.

9. The method according to Claim 3, wherein the increasing range of the threshold for the length of the data frame is to increase 0 – 100% of the previous threshold each time; and the decreasing range of the threshold for the length of the data frame is to decrease 0 – 100% of the previous threshold each time.

10. The method according to Claim 3, wherein the threshold for the length of the data frame is in a range from a minimum frame length threshold specified in IEEE 802.11 specification to a maximum frame length threshold specified in IEEE 802.11 specification.